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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,563	01/20/2004	Jeroen Valensa	00655-1213US	1065
32116 7590 09/19/2007 WOOD, PHILLIPS, KATZ, CLARK & MORTIMER 500 W. MADISON STREET SUITE 3800 CHICAGO, IL 60661			EXAMINER RAHIM, AZIM	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 09/19/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/760,563

Applicant(s)

VALENSA ET AL.

Examiner

Azim Rahim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/20/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/21/2005.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Valensa et al. (US 7,069,981).

Regarding claims 1, 6 and 10, Valensa et al. disclose a reformat cooling system (fig. 1) for reducing the temperature of a reformat to within a desired temperature range for use in a fuel processing subsystem (see abstract), the fuel processing subsystem including a process water flow that supplies water to a fuel flow in the fuel processing subsystem (col. 1 lines 35-37, water entering the system); the reformat cooling system comprising: at least one heat exchanger unit (22) to transfer heat from the reformat flow to a portion of the process water flow (col. 1 lines 35-37), the at least one heat exchanger including a coolant inlet (entrance 62), a coolant outlet (exit 64), a coolant

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flow path (flow path 56) to direct the portion of the process water flow from the coolant inlet to the coolant outlet (explicitly shown in fig. 3), a reformat inlet (entrance 68), a reformat outlet (exit 70), and a reformat flow path (flow path 58) to direct the reformat flow from the reformat inlet to the reformat outlet with a concurrent flow relationship between the portion of the process water flow in the coolant flow path and reformat flow in the reformat flow path (explicitly shown in fig. 2), the heat exchanger having a sufficient effectiveness to fully vaporize the portion of the process water flow and bring the reformat flow and the portion of the process water flow toward a common exit temperature under normal operating conditions for the fuel processing subsystem (col. 7 lines 18-22); a valve (44) connected to the coolant inlet (via line 46) to control the flow rate of said portion of the process water flow to the coolant inlet (capable of relieving the pressure of the flow from "HUMID"); a temperature sensor (40) positioned to measure an outlet temperature of the reformat (col. 2 lines 19-20); a controller (PID controller 42) connected to the temperature sensor and responsive thereto to selectively control the portion of the process water flow via the valve to regulate the common exit temperature to a desired temperature range (col. 2 lines 18-29); and an active control loop (the connection of the temperature sensor 40 and valve 44 to PID controller 42) to control the flow rate of the portion of the process water flow through the heat exchanger to maintain the common exit temperature within the desired temperature range (col. 2 lines 18-29, where this system is capable of performing the above limitation). Also note that the system inherently performs the method of operating a reformat cooling system.

Regarding claim 2, Valensa et al. disclose wherein an auto-thermal reformer (26) receives the portion of the process water flow from the coolant outlet and mixes the portion of the process water flow with the fuel flow (col. 6 lines 11-16, in with humidified air/methane and out with reformat).

Regarding claim 3, Valensa et al. disclose wherein the temperature sensor (40) is positioned at the reformat outlet (explicitly shown in fig. 1).

Regarding claim 4, Valensa et al. disclose wherein the temperature sensor is positioned at the coolant outlet.(col. 3 lines 42-49, where there would have to be a temperature sensor in order to compare the temperatures of both first and second fluid outlets).

Regarding claim 5, Valensa et al. disclose wherein the controller is electronically coupled to the temperature sensor (col. 2 lines 18-29).

Regarding claim 7, Valensa et al. disclose the step of adjusting the temperature range of the reformat exiting the first flow path in response to changes in catalytic activity in a hydrogen purification device receiving said reformat exiting the first flow path (col. 1 line 61 – col. 2 line 5, the catalytic activity in ATR 26).

Regarding claim 8, Valensa et al. disclose the step of recombining the portion of the

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process water flow with a remainder of the process water flow(fig. 1, where the line from "HUMID" splits into one line to heat exchanger 30 and line 46, each taking portions of the humidified air/methane mixture and recombining after the heat exchanger 30)..

Regarding claim 9, Valensa et al. disclose the step of transferring the recombined process water flow to an auto-thermal reformer (fig. 1, arrow to ATR 26)

Regarding claim 11, Valensa et al. disclose wherein the active control loop is a feedback control loop (the feedback of temperature sensor 40 and valve 44 to the PID controller 42, indicated by dotted line).

Regarding claim 12, Valensa et al. disclose wherein the active control loop includes a valve (44) to control the flow rate of the portion of the process water flow (explicitly shown in fig. 1).

Regarding claim 13, Valensa et al. disclose wherein the active control loop monitors the reformat outlet temperature (inherent due to the connection of the temperature sensor 40 and the PID controller 42).

14. The reformat cooling system of claim 10 wherein the coolant outlet is connected to an auto-thermal reformer (fig. 1, indicated by arrow from heat exchanger 30 to ATR 26).

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Kuwaba (US 6,632,409) discloses a reformer for a fuel cell system.

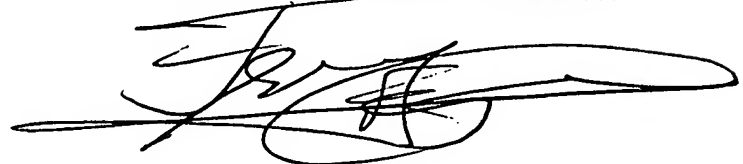
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azim Rahim whose telephone number is 571-270-1998. The examiner can normally be reached on Mon - Thu 8am - 4:30pm Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached at 571-272-6681 or Cheryl Tyler at 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR 9/12/2007

FRANTZ JULES  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to be 'Frantz Jules', written over a horizontal line.